

Cottam Solar Project

Environmental Statement Chapter 20: Waste

Prepared by: Lanpro Services
January 2023

PINS reference: EN010133
Document reference: APP/C6.2.20
APFP Regulation 5(2)(a)



Contents

20	WASTE	3
20.1	INTRODUCTION	3
20.2	CONSULTATION	3
20.3	POLICY CONTEXT	5
20.4	ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA	9
20.5	BASELINE CONDITIONS	12
20.6	EMBEDDED MITIGATION	15
20.7	IDENTIFICATION AND EVALUATION OF LIKELY SIGNIFICANT EFFECTS	16
20.8	MITIGATION MEASURES	26
20.9	IN-COMBINATION EFFECTS	27
20.10	CUMULATIVE EFFECTS	33
20.11	RESIDUAL EFFECTS	39
20.12	REFERENCES	41

Issue Sheet

**Report Prepared for: Cottam Solar Project Ltd.
DCO Submission**

Environmental Statement Chapter 20: Waste

Prepared by:

Name: Stephen Flynn

Title: Planner

Approved by:

Name: Ian Douglass

Title: Director of Planning

Date: January 2023

Revision: [02]

20 Waste

20.1 Introduction

20.1.1 This chapter of the Environmental Statement (ES) considers the waste streams arising from the Scheme and any likely significant effects during the construction, operation and decommissioning phases.

20.1.2 The purpose of this chapter is to describe the effects upon sensitive receptors caused by the Scheme and its significance related to waste; as well as the relevant mitigation measures proposed to be put in place to reduce waste.

20.2 Consultation

20.2.1 An EIA Scoping report was submitted to the Planning Inspectorate (PINS) in January 2022, with the EIA Scoping Opinion adopted in March 2022. **Table 20.1** provides a summary of the waste related comments made by PINS and relevant consultees at the Scoping stage. In addition, responses received, in respect of waste, at the statutory consultation stage (July 2022) are set out.

Table 20.1: Summary of consultation responses

Consultee	Comments / Matters Raised	Response / Matters Addressed
The Planning Inspectorate (EIA Scoping)	<p>The Applicant proposed to scope out the whole topic of waste. The Inspectorate did not agree to scope waste out as the potential remains for significant effects to occur both from the Proposed Development alone and cumulatively with other developments during construction and decommissioning.</p> <p>The ES should include an assessment of waste impacts where significant effects are likely to occur and include and outline what measures, if any, are in place to ensure that panels and any associated components are able to be diverted from the waste chain.</p>	<p>A waste chapter was prepared for the Preliminary Environmental Information Report (PEIR) at the statutory consultation stage, and has been included in the ES.</p> <p>The waste chapter assesses waste impacts where significant effects are considered likely to occur. Measures to ensure that panels and components will be diverted from the waste chain are also outlined. Refer to Section 20.7.</p>
Nottinghamshire County Council (EIA Scoping)	<p>Advised that there are no existing waste facilities within the vicinity of the site whereby the proposed development could cause an issue in terms of safeguarding existing</p>	<p>Consideration of the location of existing waste facilities within the ES Chapter, together with the 'Saved' Policies of the Waste Local Plan and Waste Core</p>

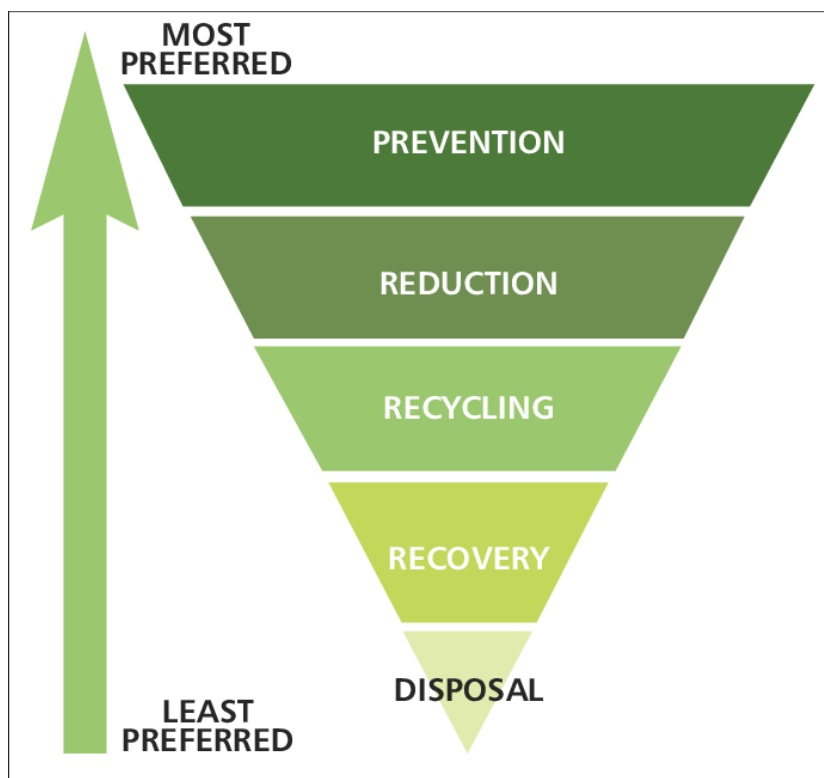
	management facilities (as per Policy WCS10 of the Waste Local Plan).	Strategy. Refer to Paragraph 20.5.10.
Bassetlaw District Council (EIA Scoping)	Refer to Nottinghamshire County Council response.	See above.
West Lindsey District Council (Statutory Consultation Stage)	The preliminary findings are noted. However, it is noted that at the decommissioning stage, it is estimated that significant volumes of waste will be generated. The PEIR states that “Standard good practice for waste management will be implemented during decommissioning”. It is appreciated that decommissioning is expected to take place some 40 years after operations commence – however, it would be relevant to set out principles at this stage. It is noted that further details will be provided with the ES.	The preliminary strategy for decommissioning waste is set out in the Outline Decommissioning Statement [EN010133/APP/C7.2] . A final Decommissioning Plan will be submitted to the relevant planning authority for approval closer to the decommissioning phase. The final Decommissioning Plan must be substantially in accordance with the Outline Decommissioning Statement Outline principles to be carried forward are therefore set out in this ES chapter.
Lincolnshire County Council (Statutory Consultation Stage)	How are batteries going to be decommissioned considering they will be replaced several times over the plant’s lifespan?	Batteries are to be decommissioned and recycled by a specialist recycling company contracted, and carried out in compliance with legislation and guidance applicable at the time. This will be secured through a Decommissioning Environmental Management Plan (DEMP) in accordance with the principles within the Outline Decommissioning Statement [EN010133/APP/C7.2] . A suitable tendering process should secure that the most up-to-date guidance, practices and technology is used. Replacement of batteries during the operational stage will be via a specialist recycling company contracted, and carried out in compliance with the relevant legislation and guidance

		<p>applicable at the time. This will be secured through an Operational Environmental Management Plan (OEMP) in accordance with the principles within the Outline Operational Management Plan [EN010133/APP/C7.16].</p>
--	--	--

20.3 Policy Context

- 20.3.1 The Waste Framework Directive (Ref 20.2) provides the framework for the management of waste across the EU. The Waste (England and Wales) Regulations 2011 (as amended) (Ref 20.1) transposed the Waste Framework Directive into domestic law in England and Wales. The framework requires waste prevention programmes and waste management plans that apply the waste hierarchy. The waste hierarchy is shown below in **Figure 20.1**.
- 20.3.2 The hierarchy will be applied throughout the lifetime of the Scheme during construction, operation, and decommissioning

Figure 20.1: Waste Hierarchy



- 20.3.3 The Waste Electrical and Electronic Equipment ('WEEE') Recycling Government Guidance Note (January 2014) (Ref 20.20) provides specific advice about compliance with the WEEE Regulations 2013 (Ref 20.21). The WEEE Regulations 2013 apply to all

Electrical and Electronic Equipment ('EEE') placed on the market in the UK covered by the scope of the Regulations. Obligations are imposed on producers, distributors and consumers of EEE. As a result of this complex mix of product types and materials, some of which may be hazardous, WEEE recycling poses a number of health risks that need to be adequately managed. Further guidance on specific substances and components is included in the DEFRA document titled "*Guidance on Best Available Treatment Recovery and Recycling Techniques (BATRRRT) and treatment of Waste Electrical and Electronic Equipment (WEEE)*" (Ref 20.22). As the Scheme contains a Battery Energy Storage System (BESS), the removal of batteries from WEEE will be required, and the handling, recovery, recycling, or disposal of batteries will need to be undertaken in accordance with the Waste Batteries and Accumulators Regulations 2009 (Ref 20.23).

- 20.3.4 The Scheme is anticipated to generate substantive WEEE through decommissioning, including photovoltaic panels, batteries, and substation equipment, as well as other smaller quantities of WEEE from supporting electrical infrastructure. As such, these will be recovered and recycled by an authorised reprocessor as required by the WEEE Regulations 2013. Any other WEEE from the Scheme's operation and maintenance is not anticipated to be significant. Batteries are required to be separated from WEEE so that they can be recovered, recycled, or disposed of in accordance with the Waste Batteries and Accumulators Regulations 2009. This is most likely to be undertaken by the battery manufacturer or supplier.
- 20.3.5 "Large-scale fixed installations" as defined in the WEEE Regulations 2013, such as the transformers within the substations, are excluded from the regulations. As such, these will need to be removed from the Scheme and dismantled by authorised competent specialists. The recovery, recycling, or disposal of any part of large-scale fixed installations should also be undertaken in regard to the Waste Hierarchy.
- 20.3.6 The Environment Act 2021 is to operate as the UK's new framework of environmental protection. Given that the UK has left the EU, new laws that relate to nature protection, water quality, clean air, as well as additional environmental protections that originally came from Brussels, needed to be established. The Environment Act allows the UK to enshrine some environmental protection into law. It offers new powers to set new binding targets, including for air quality, water, biodiversity, and waste reduction. Part 3 is to relate to waste and resource efficiency, and will include obligations for managing waste, enforcement and regulation.
- 20.3.7 The Environmental Protection Act 1990 provides the structure and authority for waste management and control of emissions into the environment. Part II of the Act relates to Waste on Land, and places a duty of care on anyone who produces, stores, transports or disposes of waste to take all reasonable steps to ensure that waste is managed properly.
- 20.3.8 Overarching National Policy Statement (NPS) for Energy (EN-1) (Ref 20.3) sets out in Section 5.14 'Waste Management' the strategy that should be taken regarding reducing the amount of waste where possible and trying to use it as a resource

wherever possible. Paragraph 5.14.6 states that *“The applicant should set out the arrangements that are proposed for managing any waste produced and prepare a Site Waste Management Plan. The arrangements described and Management Plan should include information on the proposed waste recovery and disposal system for all waste generated by the development, and an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation.”*

- 20.3.9 It goes on to further state that applicants should seek to minimise the volume of waste produced and the volume of waste sent to disposal unless it can be demonstrated that this is the best overall environmental outcome. Construction best practices should be utilised in relation to storing of materials in an adequate and protected place on site to prevent waste. The same approach is reflected in the emerging draft NPS EN-1 (September 2021) (Ref 20.4), which also encourages applicants to refer to the Waste Prevention Programme for England.
- 20.3.10 Paragraph 5.14.7 states that *“The IPC should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from construction, operation and decommissioning of the proposed development. It should be satisfied that: any such waste will be properly managed, both on-site and off-site; the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available; and adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arising sent to disposal, except where that is the best overall environmental outcome.* This direction is reflected in Paragraph 5.15.9 of the draft NPS EN-1.
- 20.3.11 The emerging draft NPS EN-1 encourages applicants, where possible, to source materials from recycled or reused sources and use low carbon materials, sustainable sources and local suppliers. It further encourages the use of construction best practices to ensure that material is reused or recycled onsite where possible.
- 20.3.12 Lincolnshire Minerals and Waste Local Plan (June 2016) (Ref 20.5) sets out the vision, objectives, spatial strategy and development management policies for minerals and waste development in Lincolnshire up to 2031. The policies in the Local Plan therefore solely focus on the provision of waste facilities, and are not considered explicitly relevant in the context of this chapter. The Local Plan has not therefore been considered further.
- 20.3.13 Lincolnshire County Council is in the process of reviewing the Minerals and Waste Local Plan (June 2016). This follows a review of the existing policy framework undertaken in 2020. The final report identifying the conclusions of the review was approved by the County Council on 19 February 2021. The review highlighted issues with a number of policies of the Local Plan, and concluded that the most appropriate course of action would be to update the Local Plan in its entirety. The latest timetable for the review is set out in the Lincolnshire Minerals and Waste Development Scheme (February 2021) (Ref 20.13). A consultation on the issues and

options for updating the Local Plan took place from 28 June 2022 to 12 August 2022 (Ref 20.14), although no draft policies are included within the consultation document. The Development Scheme outlines that consultation on the Preferred Approach (Regulation 18) is to take place in Spring 2023; publication of the Proposed Submission version (Regulation 19) in Spring 2024; submission to the Secretary of State in Summer 2024; Examination Hearings in Autumn 2024; and adoption in Winter 2024/25. A number of evidence base documents support the emerging review of the Minerals and Waste Local Plan. This includes, inter alia, the Lincolnshire Waste Needs Assessment 2021 – Report 3 (June 2021) (Rf 18.9) which estimates Lincolnshire’s future management requirements for Construction, Demolition and Excavation Waste.

- 20.3.14 Nottinghamshire and Nottingham Waste Local Plan (2002) (Ref 20.6) and Waste Core Strategy (2013) (Ref 20.7). The Local Plan ‘Saved’ policies are partly replaced by the Core Strategy. The ‘Saved’ policies relate to proposals for waste management and associated facilities, and are not considered explicitly relevant in the context of this chapter. The Local Plan has not therefore been considered further. The Waste Core Strategy sets out the approach to delivering sustainable waste management in Nottinghamshire until 2031. The strategy also sets out strategic policy and criteria on the location and types of facilities that are needed. The Core Strategy is not considered explicitly relevant in the context of this chapter, and therefore has not been considered further. The County Council is working on preparing a new Local Plan which will replace both the Local Plan ‘Saved’ Policies and Core Strategy. A Draft Plan was published for consultation on 7 February 2022. It included draft policies against which proposals for new waste development will be assessed once adopted. It is not therefore considered relevant in the context of this chapter, and has not been considered further. The County Council’s Minerals and Waste Development Scheme (February 2021) (Ref 20.15) outlines that the Publication (Regulation 19) stage is due to take place in early 2023; with adoption in mid-July 2023.
- 20.3.15 Bassetlaw District Council’s adopted planning policies currently comprise the Core Strategy and Development Management Policies DPD (December 2011) (Ref 20.16). However, there are no adopted policies related to waste management and therefore it is not considered explicitly relevant in the context of this chapter. The Core Strategy and Development Management Policies DPD has not therefore been considered further. Bassetlaw District Council is in the process of replacing its adopted planning policies. The Publication Version of the Bassetlaw Local Plan 2020-2038 (July 2022) (Ref 20.17) has been submitted to the Secretary of State for independent Examination, and Hearing Sessions commenced in November 2022. The District Council intends to adopt the Local Plan 2020-2038 in 2023. There are no draft policies related to waste management within the New Local Plan and therefore it is not considered explicitly relevant in the context of this chapter. It has not been considered further.
- 20.3.16 West Lindsey District Council’s adopted planning policies currently comprise the Central Lincolnshire Local Plan (April 2017) (Ref 20.18). It contains planning policies

and allocations for the growth and regeneration of Central Lincolnshire over the next 20-years. Policy LP18 relates to climate change and low carbon living, and requires development to, inter alia, minimise construction waste. The Central Lincolnshire Planning Authorities are in the process of preparing a Local Plan Review which, once adopted, will replace the Central Lincolnshire Local Plan. An Issues and Options Consultation was undertaken from June 2019, a Draft Local Plan Consultation was undertaken from June 2021, and the Proposed Submission iteration was published in March 2022 (Ref 20.19). On 8th July 2022, the Local Plan Review was submitted to the Planning Inspectorate for independent examination. Examination sessions commenced in November 2022. Emerging Policy S10 supports proposals which, in principle, demonstrate their compatibility with, or the furthering of, a circular economy in the local area.

Relevant Industry Guidance

- 20.3.17 As the professional accreditation body for the production of EIAs, the Institute of Environmental Management & Assessment (IEMA) provides a number of guides for the production of environmental assessments and in specific regard to waste assessment in EIA, has produced a guidance document (Ref 20.8) for materials and waste assessment.
- 20.3.18 The IEMA guide to: Materials and Waste in Environmental Impact Assessment – Guidance for a proportionate approach (2020) (Ref 20.8) provides a clear framework for determining the methodology for assessing waste impacts. This includes defining the area of influence subject to study, applying sensitivity criteria, and defining how to assess the magnitude of impacts. As a result, this guidance has been incorporated into the assessment in the rest of this chapter.

20.4 Assessment Methodology and Significance Criteria

- 20.4.1 The baseline assessment undertaken for this ES chapter has been provided in accordance with IEMA Guidance to give an understanding of the waste conditions within the anticipated zone of influence, known hereafter as the Local Impact Area of the Scheme. This assessment therefore aims to make a proportionate assessment of the likely impacts of the Scheme based on the information publicly available at the time of writing.
- 20.4.2 For the purpose of this assessment the Local Impact Area is the area covered by Lincolnshire County Council, Nottingham City Council and Nottinghamshire County Council. This area has been selected as a result of the likelihood of this area to experience potential effects from the waste output of the Scheme as the waste local authorities covering the Order Limits. As a result, the following information sources have been used for this assessment:
- Lincolnshire County Council Waste Local Plan documents;
 - Nottinghamshire County Council Waste Local Plan; and

- Nottinghamshire and Nottingham City Joint Waste Authority Local Plan documents.

20.4.3 The assessment of receptor sensitivity has been determined at the waste region level (the whole Local Impact Area), in compliance with the guidance set out by IEMA (Ref.18.8). Using the Void Capacity Method W1, the magnitude of impact from waste is assessed by determining the percentage of the remaining landfill void capacity that will be depleted by waste produced during the construction and operation phases of the development. Any localised sensitivities will be identified through professional judgement to determine the level of importance, and the level of resource adaptability to change. Determination of importance and sensitivity to change is not set out by IEMA.

20.4.4 The identification of key effects has been determined through provision of a model of anticipated waste streams arising from the development by an accredited Engineering Procurement Construction (EPC) contractor. This model has been developed to industry standards, and has therefore been based on activities, material requirements and staff requirements during the construction, operation, and decommissioning phases. Waste streams and quantities associated with the Scheme generating stations, energy storage facility, onsite substations, cable route corridor, and other associated development have been estimated and considered in relation to the waste hierarchy.

Limitations

20.4.5 The model of anticipated waste streams arising from the development does not cover all types of waste that have been assessed in this chapter. As such, professional judgement has been used to qualitatively estimate if likely waste streams from unmeasured sources are likely to be significant or not. As such, these waste streams are not included in the total calculation of anticipated waste volume or weight for each of the assessed Scheme stages.

Assessment of Sensitivity and Magnitude

20.4.6 The sensitivity of waste receptors in the Local Impact Area is based upon the relative importance of the receptors, and their ability to respond and adapt to the anticipated level of change. These are defined by the assessed baseline conditions.

Table 20.2: Criteria for Assessing Sensitivity of Receptors

Sensitivity	Definition
Very high	Over the defined study period the future baseline (without development of the Scheme), of regional recycling handling and landfill void capacity is - expected to reduce very considerably (by >10%); end during construction or operation; is already known to be unavailable; or, would require new capacity or infrastructure to be put in place to meet forecast demand.

High	Over the defined study period the future baseline (without development of the Scheme), of regional recycling handling and landfill void capacity is expected to reduce considerably: by 6-10% as a result of wastes forecast.
Medium	Over the defined study period the future baseline (without development of the Scheme), of regional recycling handling and landfill void capacity is expected to reduce noticeably: by 1-5% as a result of wastes forecast.
Low	Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling and landfill void capacity is expected to reduce minimally: by <1% as a result of wastes forecast.
Negligible	Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling and landfill void capacity is expected to remain unchanged, or is expected to increase through a committed change in capacity.

20.4.7 In determining the anticipated magnitude of impact, the criteria for each level of magnitude has been determined in compliance with the guidance set out by IEMA (Ref.18.8). The levels of magnitude have been detailed in **Table 20.3**.

20.4.8 The numerical value of waste streams, and their related impacts are rounded to a maximum of three significant figures where presented, and as such, some figures in **Tables 20.5 - 20.10** and their explanatory text may not total due to rounding.

Table 20.3: Criteria for Assessing Magnitude of Impacts

Magnitude	Definition
Major	Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by >10%.
Moderate	Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by 6-10%.
Minor	Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by 1-5%.
Negligible	Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by <1%.
No change	Zero waste generation and disposal from the development.

Significance

20.4.9 The significance of any environmental effects is determined by the interaction of the magnitude of any impacts and the sensitivity of the receptor and can be beneficial or adverse.

Table 20.4: Criteria for Assessing the Significance of Effects

Sensitivity	Very High	High	Medium	Low	Negligible
-------------	-----------	------	--------	-----	------------

Magnitude					
Major	Large	Large or very large	Moderate or large	Slight or moderate	Slight
Moderate	Large or very large	Moderate or large	Moderate	Slight	Neutral or slight
Minor	Moderate or large	Slight or moderate	Slight	Neutral or slight	Neutral or slight
Negligible	Slight	Slight	Neutral or slight	Neutral or slight	Neutral
No change	Neutral	Neutral	Neutral	Neutral	Neutral

20.4.10 Where the level of effects have been determined in accordance with professional judgment to be of a moderate or greater level of effect, these are deemed to be “**significant effects**”. In accordance with the IEMA Guidelines, all effects with regard to consumption of materials and waste are deemed to be adverse effects.

20.5 Baseline Conditions

20.5.1 The appropriate waste carriers and landfill sites will be determined by the appointed contractor at the pre-construction phase. A detailed Construction Resource Management Plan (CRMP), Construction Environmental Management Plan (CEMP), Decommissioning Environmental Management Plan (DEMP) and Decommissioning Resource Management Plan (DRMP) will be prepared for the construction and decommissioning phases. An Outline Construction Environmental Management Plan [EN010133/APP/C7.1] (OCEMP) and Outline Decommissioning Statement [EN010133/APP/C7.2] (ODS) have been submitted with the Development Consent Order (DCO) application. Section 2.10 of the OCEMP relates to waste and recycling, and identifies measures to control and manage waste on-site. This includes, inter alia, separation of the main waste streams onsite, prior to transport to an approved, licensed third party waste facility. Part of Table 3.1 of the ODS also relates to waste. These will be secured through a DCO Requirement, and include both embedded and secondary mitigation – refer to Section 20.6.

20.5.2 For the purpose of assessment, and as identified in Paragraph 20.4.2, Lincolnshire County Council, Nottingham City Council and Nottinghamshire County Council comprise the Local Impact Area, and are defined as the area within which waste from the Scheme will be managed. Quantities of waste arisings have been estimated, which have been based on the type of materials used construction methodologies. A precautionary (i.e. conservative) approach has been taken for the purposes of this assessment, including the estimates calculated and applied in this chapter. Further information regarding waste quantity estimates is detailed in the ES Chapter 7: Climate Change [EN010133/APP/C6.2.7].

Lincolnshire

- 20.5.3 The Lincolnshire Minerals and Waste Local Plan Evidence Base document: Lincolnshire Waste Needs Assessment 2021 - Report 3: Lincolnshire Management Requirements for Construction, Demolition and Excavation Waste (2021) (Ref.18.9) provides baseline information for the entirety of Lincolnshire. No further sub-regional breakdown is deemed to be proportionate for this assessment on the basis that the document is considered to be the most up-to-date and relevant, together with the assessment of receptor sensitivity being determined as the waste region level in compliance with the guidance set out by IEMA (Ref.18.8).
- 20.5.4 The Lincolnshire Waste Needs Assessment 2021 identifies an estimated construction, demolition & excavation waste (CD&E) production baseline of 901,000 tonnes per annum from 2020 to 2045 based on 2019-base year modelling.
- 20.5.5 Of this waste, the Lincolnshire Waste Needs Assessment 2021 targets a combined recycling, reuse, transfer, and treatment rate for CD&E waste of 75%, equating to 676,000 tonnes per annum. It provides gap analysis figures for the year 2025 (chosen as it falls during the construction period), which identifies the handling capacity in recycling and recovery sites in the county is 834,000m³, equivalent to approximately 1,330,000 tonnes per annum. This therefore demonstrates that Lincolnshire's recycling and recovery sites have an excess capacity of 658,000 tonnes per annum for the duration 2020-2045, and are therefore of a negligible sensitivity to change.
- 20.5.6 The baseline rate of landfill from CD&E is 225,000 tonnes per annum. There is an estimated inert landfill handling capacity of 201,000 tonnes per annum, which is less than the baseline requirement. However, the Lincolnshire Waste Needs Assessment 2021 identifies an excess capacity for non-inert landfill that can be used to handle inert landfill requirement. Therefore, the combined inert and excess non-inert landfill capacity is 541,000 tonnes per annum for the plan period 2020-2045. The rate at which the total void capacity is filled is approximately 1.66% per year. This, and the resultant 316,000 tonnes per annum of resultant excess capacity, demonstrates that Lincolnshire's inert landfill sites are of a medium sensitivity to change.
- 20.5.7 The Lincolnshire Waste Needs Assessment 2021 identified that at the end of 2019, there was intermediate capacity for managing hazardous waste (including WEEE) of around 67,000 tonnes per annum, and that capacity exceeds the predicted arisings suggesting that, overall, Lincolnshire will continue to be net self-sufficient in hazardous waste. As such, it can be attributed that Lincolnshire's hazardous (including WEEE) waste handling sites are of a low sensitivity to further demand.

Nottinghamshire

- 20.5.8 The Nottinghamshire County Council Waste Need Assessment Report 2019 (Ref.18.10) provides baseline information for the entirety of the joint waste authority

of Nottingham County and Nottingham City. No further sub-regional breakdown is deemed to be proportionate for this assessment.

- 20.5.9 The waste need assessment identifies a baseline estimated construction, demolition & excavation waste (CD&E) production of 1,186,000 tonnes per annum from 2019-2038 in the Nottinghamshire County and Nottingham City area.
- 20.5.10 The report estimates that the recycling and recovery rate for CD&E waste is approximately 82.6%, equating to 979,000 tonnes per annum. The report goes on to identify an estimated handling capacity of 1,550,000 tonnes per annum in recycling and recovery sites in the county, although this drops to 1,160,000 tonnes per annum from approximately 2029 onwards. This demonstrates an excess capacity of 566,431 tonnes per annum up to 2029, and an excess capacity of 178,136 tonnes per annum up to 2038. This rate of excess capacity demonstrates that Nottinghamshire's recycling and recovery sites are of a negligible sensitivity to change.
- 20.5.11 The baseline rate of landfill from CD&E is 207,000 tonnes per annum for the years 2019-2038, whilst there is an estimated landfill handling capacity of 113,000 tonnes per annum, thus demonstrating a shortfall of 96,000 tonnes per annum during the period 2019-2038. The rate at which the total void capacity is filled is approximately 9.13% per year. Additional capacity is not demonstrated to be available from other locations and as such, capacity is expected to be reached by year 2030. As a result, this plus the deficiency in future capacity demonstrates that Nottinghamshire's landfill sites are of a high sensitivity up to 2029 and of a very high sensitivity to change thereafter. This sensitivity is given to county-wide capacity as a whole as no data on individual waste management sites is available, together with the assessment of receptor sensitivity being determined at the waste region level in compliance with the guidance set out by IEMA (Ref.18.8).
- 20.5.12 The Nottinghamshire County Council Waste Need Assessment Report 2019 identifies that there is a total capacity for managing hazardous waste of around 146,000 tonnes per annum, far greater than the anticipated annual need of 43,000 tonnes per annum. Although Nottinghamshire does not explicitly state if WEEE is included in its calculation of hazardous waste, this is assumed to be the case for the purpose of this assessment. As such it can be attributed that Nottinghamshire's hazardous (including WEEE) waste handling sites are of a negligible sensitivity to further demand.

Local Impact Area

- 20.5.13 The resultant baseline conditions of the Local Impact Area are the summation of the conditions for Lincolnshire and Nottinghamshire.
- 20.5.14 The identified CD&E waste production rate is 2,090,000 tonnes per annum, of which an estimated 1,660,000 tonnes per annum will go to recycling and recovery, with the remaining 432,000 tonnes anticipated to be sent to landfill. The Local Impact Area has an identified capacity of 2,880,000 tonnes per annum for CD&E recycling and recovery and therefore has an overall negligible sensitivity. The Local Impact Area

has an identified maximum capacity of 654,000 tonnes per annum for landfill and is expected to be filled at a yearly rate of 2.73%. Resultantly, landfill has an overall medium sensitivity to change.

- 20.5.15 However, it should be noted that these baseline and future baseline estimates only cover up to the year 2038. Any determination based on years thereafter should be taken with a reduced level of confidence, and should be reassessed due to uncertainties relating to future technologies and infrastructure, updated baseline information if available, or historical trends, in accordance with IEMA Guidance.

20.6 Embedded Mitigation

- 20.6.1 The Scheme design has incorporated innate embedded mitigation as a result of its predominant use of pre-fabrication. This allows for reduced construction waste on site, with waste produced during unit manufacturing being controlled by those companies or entities producing the solar PV units, mounting structures, energy storage / battery, temporary construction site office units and cabling for example. This therefore means most of the onsite construction waste associated with the Scheme is packaging. Whilst there will inevitably be waste created during the pre-fabrication phase, it is considered that this will be significantly reduced when compared with on-site fabrication – this approach is accepted by the IEMA Guidance.
- 20.6.2 There are a number of other embedded mitigatory measures that are due to be implemented to ensure the waste generated by the Scheme can be minimised, and any residual waste can be most appropriately handled. These are identified in Section 2.10 of the OCEMP and include, inter alia, separation of the main waste streams on-site, prior to transport to approved, licensed third party waste facilities for recycling or disposal.
- 20.6.3 The Scheme is anticipated to generate some WEEE through operation and maintenance, and a substantive amount of WEEE through decommissioning, including photovoltaic panels, batteries, and substation equipment, as well as other smaller quantities of WEEE from supporting electrical infrastructure. As such, these will be recovered and recycled by an authorised reprocessor as required by the WEEE Regulations 2013. To ensure that this is done to “Best Available Treatment Recovery and Recycling Techniques”, a list of up-to-date authorised reproducers should be established prior to the operational phase of the Scheme, and kept up-to-date throughout the operation and decommissioning phases of the Scheme. This will be secured through the OEMP and Decommissioning Statements, both of which will be secured by Requirement in the DCO.
- 20.6.4 Batteries are required to be separated from WEEE so that they can be recovered, recycled, or disposed of in accordance with the Waste Batteries and Accumulators Regulations 2009. This is most likely to be undertaken by the battery manufacturer or supplier. This is also to be secured ahead of Scheme operation in the OEMP to ensure this is undertaken as legally required throughout the operational lifetime and decommissioning of the Scheme.

- 20.6.5 “Large-scale fixed installations” as defined in the WEEE Regulations 2013, such as the transformers within the substations, are to be removed from the Scheme and dismantled by authorised competent specialists. These specialists are to be identified ahead of decommissioning and secured in the future Decommissioning Environmental Management Plan (DEMP) to ensure their practices are in keeping with “Best Available Treatment Recovery and Recycling Techniques” and that the recover, recycling, or disposal of any part of large-scale fixed installations is undertaken in regard to the Waste Hierarchy.
- 20.6.6 The location and consolidation of the main construction compound and welfare facilities on each of the Sites will help to minimise the amount of excavation and construction waste required for the provision of hardstanding for access, material storage, and welfare unit placement. The potential to consolidate welfare units at a single location on each of the Sites also helps to reduce construction waste, wastewater, and electricity use than could otherwise be required.
- 20.6.7 The provision of pre-fabricated welfare units and construction site offices also allows for the reduction of construction and demolition waste generated by the Scheme. Similarly, the battery energy storage system is made up of modular units that can be grouped into standard shipping container sized payloads that can be transported in their finished state to the site, thus removing the need for construction and packing waste for these elements.

20.7 Identification and Evaluation of Likely Significant Effects

- 20.7.1 It is anticipated that significant amounts of waste will not be produced due to the nature of the Scheme. Details have been provided below on how waste streams will be managed and controlled during the construction, operation, and decommissioning of the Scheme.
- 20.7.2 The OCEMP and ODS have been submitted with the DCO Application, which includes measures to control and manage waste on-site. Detailed CEMP(s) and DS will be prepared in accordance with the Outline Versions, and secured by a Requirement. Both will be submitted for approval by the relevant local planning authority or authorities in advance of starting the relevant phase of the construction works
- 20.7.3 For the construction and decommissioning phases, in compliance with the outline documents submitted as part of the DCO Application, and subject to any requirements in the approved DCO, the CRMP, full CEMP, and DEMP will be prepared ahead of their respective development phases.

Construction

- 20.7.4 Estimated volumes and potential streams of construction waste, in addition to estimated water and electricity usage, have been used within the ES Chapter 7: Climate Change [EN010133/APP/C6.2.7] to establish the climactic environmental impacts of the construction of the Scheme. In this chapter, the same estimates are to be assessed against the waste handling capacity of the Local Impact Area.

- 20.7.5 Construction activities associated with the Scheme are extensive and are anticipated to be undertaken across a 24-month construction period. Construction waste generated across all four of the Sites and the connecting Cable Route Corridor have all been assessed in this section. These activities include, but are not limited to, the below. The volumes also referenced are precautionary and a worst case scenario, which is considered to reflect the project design envelope approach.
- Piling of steel frame mounting systems in rows across the Sites;
 - Mounting of the solar panels onto the frame system;
 - Digging of trenches for laying of underground electrical cables;
 - Creation of concrete foundation/bases as required for structures such as substations and battery energy storage units;
 - Trenching and horizontal directional drilling of high voltage cables;
 - Creation of haul roads to allow access for HGVs including abnormal indivisible loads;
 - Creation of access tracks within the Sites;
 - Installation of temporary and permanent security systems, such as fencing and CCTV;
 - The siting of offices and welfare units for construction workers
 - The laying of hardstanding for construction compounds and laydown areas;
 - Landscaping including removal of vegetation to facilitate access to works and ground clearance; and
 - Earthmoving including earth works to create habitat management areas.
- 20.7.6 The majority of the construction equipment will be delivered to Site for assembly, installation and connection. The types of waste streams associated with the removal of waste material during construction are summarised below in **Table 20.5**. Wastewater generated during construction will be limited. Any wastewater generated from welfare facilities will be removed by tanker to an approved wastewater and sewage treatment centre. As such, this would not give rise to significant environmental effects and is not considered further.
- 20.7.7 Employee activity will generate a minimal amount of commercial, food and sewage waste. Commercial and food waste will be managed by appropriate permitted waste carriers and taken to facilities in line with environmental permits and requirements
- 20.7.8 Moreover, following grant of a DCO, a detailed CEMP will be produced which will establish on-site waste management and recycling opportunities.
- 20.7.9 Where a range is presented for the purposes of estimating volumes, the worst case volume has been used in the assessment to reflect the precautionary approach assumed.

Table 20.5: Waste Arising from Construction

Waste	Destination	Estimated Volume
Paint	Authorised recycling or landfill	Low (not significant)
Solvents	Authorised recycling or landfill	Low (not significant)
Chemical cans and containers	Authorised recycling or landfill	Low (not significant)
Vegetation	Authorised recycling or landfill	Low (not significant)
Pallet wood For PV module and mounting structure packing	Authorised recycling or landfill	24,400-24,700m ³
Corrugated cardboard, plastic wrap and Kraft cardboard For PV module and mounting structure packing	Authorised recycling or landfill	14,200-14,400m ³
Polyurethane foam padding For PV module cushioning during transport	Authorised recycling or landfill	12,900-13,000m ³
HDPE corner and edge spacers For PV module packing	Authorised recycling or landfill	235-238m ³
Pallet nails (2.5x55mm) For PV module packing	Authorised recycling	4.31-4.35m ³
TOTAL PACKING MATERIAL WEIGHT		3,797-3,834 tonnes
DC cable drums (9,060-9,150 no.) Mixed wood, plastic, metal	Authorised recycling or landfill	217-220 tonnes
LV cable drums (604-610 no.) Mixed wood, plastic, metal	Authorised recycling or landfill	279-282 tonnes
Grounding cabling drums (1,812-1,830 no.) Mixed wood, plastic, metal	Authorised recycling or landfill	101-102 tonnes

MV cable drums (151-153 no.) Mixed wood, plastic, metal	Authorised recycling or landfill	70-71 tonnes
TOTAL CABLE DRUM MATERIAL WEIGHT		668-675 tonnes
Excavation material from trenches unusable elsewhere on site	Authorised recycling or landfill	31,400- 31,700m ³
Excavation material from drainage, roads and foundations unusable elsewhere on site	Authorised recycling or landfill	27,000- 27,200m ³
TOTAL EXCAVATION WASTE (estimated soil density of 1,250kg/m ³)		73,000-73,600 tonnes

Note: Authorised recycling referred to above, would be the preference in accordance with the WFD waste hierarchy

20.7.10 The total estimated construction, demolition and excavation (CD&E) waste to be generated from the Scheme construction is 77,400-78,100 tonnes over the 24-month construction period. Per annum, this equates to an uplift in CD&E waste of 38,700-39,100 tonnes (1.85-1.87%) from the combined estimated CD&E waste generation (2,090,000 tonnes) for the Local Impact Area in the years 2024-2026. This therefore constitutes an overall minor magnitude increase in CD&E waste handling.

20.7.11 The consequent environmental effects are as follows:

- A temporary medium term, minor magnitude uplift in CD&E waste will have the following effects across the Local Impact Area:
 - A **neutral or slight adverse effect** on recycling, reuse, and waste treatment handling (which is not considered significant in EIA terms).
 - A **slight adverse effect** on landfill waste handling (which is not considered significant in EIA terms).

20.7.12 At a sub-regional level, environmental effects for each waste authority are as follows:

- A temporary medium term, minor magnitude uplift in CD&E waste in Lincolnshire will have the following effects across the Local Impact Area:
 - A **neutral or slight adverse effect** on recycling, reuse, and waste treatment handling (which is not considered significant in EIA terms).
 - A **slight adverse effect** on landfill waste handling (which is not considered significant in EIA terms).
- A temporary medium term, minor magnitude uplift in CD&E waste in Nottinghamshire will have the following effects across the Local Impact Area:
 - A **neutral or slight adverse effect** on recycling, reuse, and waste treatment handling (which is not considered significant in EIA terms).

- A **slight or moderate adverse effect** on landfill waste handling (which is not considered significant in EIA terms).

20.7.13 Waste arising from construction is not anticipated to consist of substantial amounts of waste electrical or electronic equipment. Where this does arise, this will be recovered and recycled by an authorised reprocessor as required by the WEEE Regulations 2013.

Operation and Maintenance

20.7.14 It is anticipated that waste arising during this stage of the Scheme will produce minimal amounts of waste. Operation and maintenance waste generated across all four of the Sites and the connecting Cable Route Corridor have all been assessed in this section. The waste streams associated with these works would include but not be limited to:

- Equipment needing replacing;
- Packaging of replacement parts and removal of expired equipment;
- Removed vegetation (grass cuttings / hedge trimmings) not able to be used on site;
- Waste water and sewage for welfare units; and
- General waste (paper, cardboard, wood, etc.).

20.7.15 During this stage of the scheme, the predominant source of waste is related to the removal of expired or broken equipment that cannot be repaired, and packing material required for replacement material. Employee activity will generate a minimal amount of commercial, food and sewage waste. Commercial and food waste will be managed by appropriate permitted waste carriers and taken to facilities in line with environmental permits and requirements.

20.7.16 Wastewater generated during operation relates to a single welfare facility at each substation site. This is likely to consist of a septic tank arrangement. All wastewater will be removed by tanker to an approved wastewater and sewage treatment centre. As such, this would not give rise to significant environmental effects and is not considered further.

20.7.17 A full list of the anticipated quantum of waste per annum during operation are presenting in Table 20.6 below.

Table 20.6: Waste per Annum Arising from Operation and Maintenance

Waste	Destination	Estimated Volume
General waste	Authorised recycling or landfill	Low (not significant)

Food waste	Authorised recycling or landfill	Low (not significant)
Vegetation	Authorised recycling or landfill	Low (not significant)
Replacement PV modules Mixed glass, plastic, metal, electronics	Authorised recycling	5,230-5,280 units
TOTAL REPLACEMENT PV MODULE WEIGHT		175-176 tonnes
Pallet wood For PV module and mounting structure packing	Authorised recycling or landfill	97.1-98.1m ³
Corrugated cardboard, plastic wrap and Kraft cardboard For PV module and mounting structure packing	Authorised recycling or landfill	56.5-57.1m ³
Polyurethane foam padding For PV module cushioning during transport	Authorised recycling or landfill	77.5-78.3m ³
HDPE corner and edge spacers For PV module packing	Authorised recycling or landfill	1.41-1.43m ³
Pallet nails (2.5x55mm) For PV module packing	Authorised recycling	0.03m ³
TOTAL PACKING MATERIAL WEIGHT		15.2-15.3 tonnes
Water for cleaning equipment	Runoff (excluded as wastewater)	6,540-6,600m ³

20.7.18 For the purpose of assessment, and the large similarity in waste materials, the CD&E waste baseline is deemed to be suitable. The total estimated CD&E waste to be generated from the Scheme per annum during operation is 190-191 tonnes. Per annum, this equates to an uplift in CD&E waste of 0.009% from the combined estimated CD&E future (up to 2038) baseline of 2,090,000 tonnes per annum for Lincolnshire and Nottinghamshire. Assuming that waste is handled proportionally between Lincolnshire and Nottinghamshire, this constitutes a negligible magnitude increase in CD&E waste handling.

20.7.19 The consequent environmental effects are as follows:

- A long-term, negligible magnitude uplift in CD&E waste will have the following effects across the Local Impact Area:
 - A **neutral effect** on recycling, reuse, and waste treatment handling (which is not considered significant in EIA terms).
 - A **neutral or slight adverse effect** on landfill waste handling (which is not considered significant in EIA terms).

20.7.20 At a sub-regional level, environmental effects for each waste authority are as follows:

- A long-term, negligible magnitude uplift in CD&E waste in Lincolnshire will have the following effects across the Local Impact Area:
 - A **neutral effect** on recycling, reuse, and waste treatment handling (which is not considered significant in EIA terms).
 - A **neutral or slight adverse effect** on landfill waste handling (which is not considered significant in EIA terms).
- A long-term, negligible magnitude uplift in CD&E waste in Nottinghamshire will have the following effects across the Local Impact Area:
 - A **neutral effect** on recycling, reuse, and waste treatment handling (which is not considered significant in EIA terms).
 - A **slight adverse effect** on landfill waste handling, as a result of its future very high sensitivity (which is not considered significant in EIA terms).

20.7.21 Waste electrical or electronic equipment (WEEE) arising from the operation and maintenance of the Scheme is anticipated to be limited to worn or broken photovoltaic panels, as these are identified as WEEE under Schedule 4 of the WEEE Regulations 2013. These are not likely more than negligible quantities of hazardous materials, and as such, it is anticipated that there will be a long-term negligible magnitude uplift to hazardous waste in the Local Impact Area will have the following effects:

- A **neutral or slight adverse effect** on hazardous (including WEEE) waste handling in Lincolnshire (which is not considered significant in EIA terms); and
- A **neutral effect** on hazardous (including WEEE) waste handling in Nottinghamshire (which is not considered significant in EIA terms).

20.7.22 Any other WEEE from the Scheme operation and maintenance is not anticipated to be substantive and is therefore not anticipated to have any further effect to WEEE handling.

Decommissioning

20.7.23 Decommissioning waste generated across all four of the Sites and the connecting Cable Route Corridor have all been assessed in this section. The main decommissioning wastes associated with the Scheme are expected to be as follows:

- Solar panels and their associated mounting structures;
- Breaking up of concrete foundation/bases, including the Energy Storage Facility and substation compounds;
- Rubble from any access tracks within the Sites;
- Electrical equipment including substations, batteries, cables and inverters;
- Welfare facility waste; and
- Waste metals and wood.

20.7.24 The types of waste streams associated with the removal of waste material during decommissioning are summarised below in **Table 20.7**. A qualitative estimate on the volume of waste materials is made in **Table 20.7** given the information that is known at this stage.

Table 20.7: Waste Arising from Decommissioning

Waste	Destination	Estimated Volume
Metal	Authorised recycling or landfill	Low (not significant)
Concrete	Authorised recycling or landfill	Moderate (not significant)
Rubble	Authorised recycling or landfill	Moderate (not significant)
Building waste	Authorised recycling or landfill	Low (not significant)
Vegetation	Authorised recycling or landfill	Low (not significant)
Solar PV equipment		1,310,000-1,320,000 units
Silicon	Authorised recycling or landfill	2,070-2,090 tonnes
Glass	Authorised recycling	29,200-29,500 tonnes
Steel Frames	Authorised recycling	12,200-12,300 tonnes
Steel Mounting Structures	Authorised recycling	24,500-24,800 tonnes
TOTAL SOLAR PV MODULE AND MOUNTING STRUCTURE WEIGHT		68,200-68,900 tonnes
Steel	Authorised recycling	1,160 tonnes
Copper	Authorised recycling	304 tonnes

Plasterboard	Authorised recycling or landfill	76.0 tonnes
Transformer oil	Authorised recycling or landfill	584 tonnes
TOTAL ELECTRICAL (SUBSTATION/INVERTERS) WASTE WEIGHT		2,130 tonnes
Battery energy storage cell and container structure	Authorised recycling or landfill	456-932 units
Battery Station	Authorised recycling or landfill	114-233 units
TOTAL ELECTRICAL (Energy Storage) WASTE WEIGHT		7,050-14,400 tonnes

- 20.7.25 The Solar PV arrays and related components, substations, ancillary infrastructure, and the Energy Storage compound will be removed, and recycled or disposed of in accordance with good practice and market conditions at that time. The method for waste management and key procedures will be set out in a final Decommissioning Statement, secured through requirement of the DCO and will be substantially in accordance with the Outline Decommissioning Statement **[EN010133/APP/C7.2]**.
- 20.7.26 The underground cable within the Grid Connection Route would be removed and the ground reinstated (albeit the cable ducts may be likely to remain in situ).
- 20.7.27 As with construction activities, all wastewater and sewage from construction is to be stored on-site and removed by tanker to an approved wastewater and sewage treatment centre. As such this is considered not to give rise to significant effects and is not considered further.
- 20.7.28 Waste materials that are transported off the site will be delivered to a licensed waste disposal site. Presently, there are no baseline estimates for capacity at county recycling and landfill sites for the estimated earliest decommissioning period of 2066-2068. Therefore, the sensitivity of these receptors cannot be accurately determined. It is therefore assumed for the purpose of this assessment that sensitivity levels in 2066 are the same as those in 2024. Technological advancement in handling of recycling, reuse, and treatment of waste may also change the outcomes when considered with technology available today.
- 20.7.29 Opportunities will be explored to minimise waste and re-use or recycle materials, before resorting to landfill options. There is an emerging industry for recycling and re-selling operational solar panels, which can help reduce waste produced by the scheme. As part of the final Decommissioning Statement, management of waste created during this stage of the Scheme will be incorporated.
- 20.7.30 For the purpose of assessment, and the large similarity in waste materials associated with the decommissioning of the Scheme, the CD&E waste baseline is

deemed to be suitable in accordance with IEMA Guidance. The total estimated quantifiable CD&E waste to be generated from the Scheme per annum during decommissioning is 39,000-42,400 tonnes. Per annum, this equates to an uplift in CD&E waste of 1.87-2.03% from the combined estimated CD&E future (up to 2038) baseline for Lincolnshire and Nottinghamshire of 2,090,000 tonnes per annum, albeit the confidence in the sensitivity of receptors for decommissioning is low due to the passage of time before decommissioning activities will be undertaken.

- 20.7.31 This low magnitude of waste is similar in quantity to that estimated for construction, the assessment environmental effects of which represent a reasonable worst-case scenario. For the purpose of this assessment, decommissioning is estimated to have a similar level of magnitude of impact as construction, and is therefore treated as a reasonable worst-case scenario with the same assumptions made relating to proportion of waste going to recycling versus landfill (75% of CD&E waste going to recycling in Lincolnshire, and 82.6% in Nottinghamshire).
- 20.7.32 Assuming that waste is handled proportionally between Lincolnshire and Nottinghamshire, this therefore constitutes a minor magnitude increase in CD&E waste handling from decommissioning.
- 20.7.33 The consequent environmental effects are as follows:
- A temporary medium term, minor magnitude uplift in CD&E waste will have the following effects across the Local Impact Area:
 - A **neutral or slight adverse effect** on recycling, reuse, and waste treatment handling (which is not considered significant in EIA terms).
 - A **slight adverse effect** on landfill waste handling (which is not considered significant in EIA terms).
- 20.7.34 At a sub-regional level, environmental effects for each waste authority are as follows:
- A temporary medium term, minor magnitude uplift in CD&E waste in Lincolnshire will have the following effects across the Local Impact Area:
 - A **neutral or slight adverse effect** on recycling, reuse, and waste treatment handling (which is not considered significant in EIA terms).
 - A **slight adverse effect** on landfill waste handling (which is not considered significant in EIA terms).
 - A temporary medium term, minor magnitude uplift in CD&E waste in Nottinghamshire will have the following effects across the Local Impact Area:
 - A **neutral or slight adverse effect** on recycling, reuse, and waste treatment handling (which is not considered significant in EIA terms).
 - A **moderate or large adverse effect** on landfill waste handling, as a result of its future very high sensitivity. This therefore is a **significant effect** in EIA terms.

- 20.7.35 The Scheme is anticipated to generate substantive WEEE through decommissioning, including photovoltaic panels, batteries, and substation equipment, as well as other smaller quantities of WEEE from supporting electrical infrastructure. The total WEEE generated from the Scheme's decommissioning is 77,000-85,000 tonnes, of which 7,000-14,000 tonnes is known to be considered as hazardous (batteries). This, over a worst-case 12-month decommissioning phase, equivalent to a 6.4-12.8% rise in annual hazardous waste handling for the Local Impact Area.
- 20.7.36 As such, this is a medium-term temporary moderate to major magnitude impact, which is therefore likely to have the following effects:
- A **slight or moderate adverse effect** on hazardous (including WEEE) waste handling in Lincolnshire (which is not considered significant in EIA terms); and
 - A **slight adverse effect** on hazardous (including WEEE) waste handling in Nottinghamshire (which is not considered significant in EIA terms).
- 20.7.37 The Scheme also includes "large-scale fixed installations" as defined in the WEEE Regulations 2013, such as the transformers within the substations, which are excluded from the regulations. As part of decommissioning works, these will need to be removed from the Scheme and dismantled by authorised competent specialists. The recover, recycling, or disposal of any part of large-scale fixed installations should also be undertaken in regard to the Waste Hierarchy. Due to their handling by specialists, and the likely delay of any further impacts on waste handling in the Local Impact Area, the waste impacts of large-scale fixed installations is not anticipated to be significant in EIA terms.

20.8 Mitigation Measures

- 20.8.1 A detailed CEMP, OEMP, and Decommissioning Statement will all be secured through a DCO Requirement, prior to the commencement of construction, operation and decommissioning phases respectively. Each of these documents will be substantially in compliance with their "outline" counterparts **[EN01033/APP/C7.1, C7.16 and C7.2]** submitted as part of this DCO application. The Scheme will seek to minimise and design out waste streams where possible. Opportunities to re-use material resources will be sought where practicable, including the reuse of excavated material elsewhere within the Order Limits, such as for creating bunding. Where re-use and prevention are not possible, waste arisings will be managed in line with the waste hierarchy.
- 20.8.2 Specific mitigation measures are likely to be required at the Scheme decommissioning stage due to the likely significant effects on landfill waste handling in Nottinghamshire. This will therefore consist of effort to bias landfill waste handling in Lincolnshire where there is greater predicted capacity to reduce waste streams required to be handled in Nottinghamshire. This mitigation should be finalised and secured in the Decommissioning Statement ahead of decommissioning works commencing, and should take account of the capacity of landfill waste handling in both Nottinghamshire and Lincolnshire at the point of

production to determine the relevant proportion of waste to be directed to which county.

20.8.1 As such, this is expected to reduce the significance of impact to a **slight or moderate adverse effect**. This is therefore not significant in EIA terms.

20.9 In-Combination Effects

20.9.1 The Scheme has potential to incur combined effects with regard to waste impacts with other topics assessed within this ES. In compliance with paragraph 4(2)(a) to (d) of the EIA Regulations (Ref 20.24), the following interactions are considered:

- The combination of individual effects, for example, the combined effects of noise, dust and visual effects on a particular receptor;
- The combination of individual topics, for example, the combined effects of climate change on ground conditions;
- The combination of different works of the Scheme on a particular receptor for example, the in-combination effects of the construction of the cable circuits within the Cable Route Corridor and the Energy Storage Facility at the same time; and
- The combined effects of the four Solar Array Sites.

Individual Effects

20.9.2 Effects resulting from environmental topic covered elsewhere in the ES have already been included in the assessment of waste streams in the previous sections by virtue of inclusion of waste streams for all Works on site (such as for example vegetation waste as a result of the landscape and ecology scheme). As such, there no further in-combination effects that are likely to alter the level of significance of effect to any identified receptor within this Chapter.

Individual Topics

20.9.3 The Scheme is likely to produce in-combination effects on transport, climate change, and human health as a result of the quantum of waste generated by the Scheme during the construction, operation, and decommissioning phases of the development.

20.9.4 The removal of waste from the Sites is likely to generate additional traffic movements on the local highway network as a result of increased HGV movements from the Sites to authorised waste management centres. As such, these will have an in-combination effect on transport and access in the Local Impact Area, together with associated matters such as in-combination air quality effects. These impacts are likely to be of a low magnitude during the construction and decommissioning stages, given the geographic spread of the Scheme. As such, the anticipated in-combination effect with transport during construction and decommissioning is short-term temporary **minor adverse effect** in addition to the transport effects identified in ES Chapter 14: Transport and Access [EN010133/APP/C6.2.14]. The in-

combination effect during operation and maintenance is expected to be negligible as a result of the low number of anticipated vehicle movements associated with the Scheme, and the low number of necessary waste vehicle movements. As such, the anticipated in-combination effect with transport during operation is long-term **negligible adverse effect**.

- 20.9.5 Waste generated by the Scheme has an in-combination effect with climate change as a result of the usage of materials, resources and water required for on-site activities. The use of materials plays an important role in determining the level of in-combination effect, as use of materials that cannot be reused or recycled will exacerbate climactic impacts from the development. As such, the construction and manufacturing contractors should operate in compliance with the Waste Hierarchy and National Policy Statement for Energy , seeking to prevent waste ahead of reliance on re-use, recycling, and as a worst-case outcome, landfill. Similar principles should be incorporated where practicable for the use of water on site. As a result of the scale of the Scheme, it is likely that in-combination effects are likely to have a **moderate-minor adverse effect** in addition to the climate change effects identified in ES Chapter 7: Climate Change [EN010133/APP/C6.2.7].
- 20.9.6 Waste generated by the Scheme has the potential for in-combination effects on human health. During construction, the potential for contaminated soil to be uncovered during trenching, laying of foundations, and other earthmoving operations poses an immediate risk to onsite personnel, but also to waste handlers where contaminated soil needs to be removed from site for treatment. During operation, waste from electrical equipment including energy storage units and PV modules has the potential to contain toxic or hazardous materials that could be of risk to electrical recycling handlers. During decommissioning, removal of any contaminated soil, or toxic and hazardous materials used within the Scheme will have to be removed from the Sites and suitably recycled, reused or treated. These processes also could pose a risk to human health, particularly those of waste handlers. The quantum of existing hazardous material in the Scheme is not known, but is anticipated to be low as considered in ES Chapter 11 Ground Conditions and Contamination [EN010133/APP/C6.2.11]. As a result, it is likely that in-combination effects are likely to have a **minor adverse effect** in addition to the human health effects identified in ES Chapter 21: Other Environmental Matters [EN010133/APP/C6.2.21]. The quantum of existing hazardous material anticipated to be generated by the Scheme is identified in **Section 20.7**. The resultant likely in-combination effects are approximated to be a **minor adverse effect** during decommissioning in addition to the human health effects identified in ES Chapter 21: Other Environmental Matters [EN010133/APP/C6.2.21].
- 20.9.7 As such, no in-combination effects with any other individual ES topic is likely to lead to a significant effect.

[Combination of Works](#)

20.9.8 This ES chapter has assessed the Scheme as a whole with regard to its effects on waste receptors in the Local Impact Area. That notwithstanding, the distinct Works within the Scheme are likely to have a degree of difference in magnitude or type of impact on some receptors, either as a virtue of the works included, or the location of said works.

20.9.9 Individual Works Packages are set out in Schedule 1 in the Draft DCO [EN010133/APP/C3.1]. Where Works Packages are split by generating station and associated development, these are discussed in paragraph 20.9.14. As each Works Package covers a different element of the Scheme's development, there is a distinct level of variation as to the projected waste stream related to each Works Package. Sewage and wastewater related to use for cleaning or equipment including HGVs, and welfare and sanitation are generated by all Works Packages, and therefore the effects cannot be described individually. Although, an assessment is included within this chapter for these items, which is considered to be adequate and sufficient.

Construction

20.9.10 For each Works Package, the following waste generation is anticipated:

- Work No.1: solar generating stations
 - All waste relating to PV module packing materials
 - All waste relating to PV mounting structure packing materials
 - All waste relating to cabling from DC up to MV cables
 - Waste relating to excavation of cable trenches
 - Waste relating to excavation of ground for foundations
- Work Nos. 2 and 3: energy storage facilities
 - Waste relating to excavation of cable trenches
 - Waste relating to excavation of ground for foundations
 - Waste relating to excavation of ground for drainage
 - Waste relating to excavation of ground for water storage
- Work No.4: onsite substations
 - Waste relating to finish of security and site enclosure features
 - Waste relating to excavation of cable trenches
 - Waste relating to excavation of ground for foundations
 - Waste relating to excavation of ground for drainage
 - Waste relating to materials for fit and finish of maintenance buildings
- Work No.5: connection point at National Grid substation

- Waste relating to construction of relay room and re-equipping of generator bay
- Work No.6: laying of high voltage cables
 - Waste relating to excavation of cable trenches
 - Waste relating to HV cabling haulage
 - Waste relating to excavation of ground for road laying
 - Waste relating to materials for fit and finish of site and welfare buildings
 - Waste relating to removed vegetation
 - Waste relating to removal of temporary haul roads
- Work No.7: other onsite works
 - Waste relating to finish of security and site enclosure features
 - Waste relating to excavation of ground for road laying
 - Waste relating to removed vegetation
- Work No.8: temporary construction laydown areas
 - Waste relating to finish of security and site enclosure features
 - Waste relating to excavation of ground for road laying
 - Waste relating to materials for fit and finish of site and welfare buildings
 - Waste relating to removed vegetation
- Work No.9: means of access to works from the public highway
 - Waste relating to excavation of ground for road laying
 - Waste relating to removal of road construction (temporary accesses)
 - Waste relating to removed vegetation
- Work No.10: creation of habitat management areas
 - Waste relating to finish of security and site enclosure features
 - Waste relating to excavation of ground for habitat creation
 - Waste relating to excavation of ground for drainage
- Work No.11: creation of a new permissive footpath
 - Waste relating to removed vegetation

Operation and Maintenance

20.9.11 For each Works Package, the following waste generation is anticipated:

- Work No.1: solar generating stations
 - All waste relating to PV module packing materials

- All waste relating to replaced PV modules
- All waste relating to PV mounting structure packing materials
- All waste relating to replaced electrical equipment
- All wastewater relating to module cleaning
- Work Nos. 2 and 3: energy storage facilities
 - All waste relating to replaced battery energy storage modules
- Work No.4: onsite substations
 - Waste relating to replaced electrical equipment
 - Waste relating to maintenance of maintenance buildings
 - All waste relating to use of site offices and welfare units
- Work No.5: connection point at National Grid substation
 - No waste anticipated
- Work No.6: laying of high voltage cables
 - Waste relating to replaced electrical equipment
- Work No.7: other onsite works
 - Waste relating to replaced security and site enclosure features
 - Waste relating to removed vegetation
- Work No.8: temporary construction laydown areas
 - No waste anticipated
- Work No.9: means of access to works from the public highway
 - No waste anticipated
- Work No.10: creation of habitat management areas
 - Waste relating to replaced security and site enclosure features
 - Waste relating to removed vegetation
- Work No.11: creation of a new permissive footpath
 - Waste relating to removed vegetation

Decommissioning

20.9.12 For each Works Package, the following waste generation is anticipated:

- Work No.1: solar generating stations
 - All waste relating to removal of PV modules
 - All waste relating to removal of PV mounting structure
 - All waste relating to removal of cabling from DC up to MV cables

- Waste relating to removal of electrical equipment
- Waste relating to removal of foundations
- Work Nos. 2 and 3: energy storage facilities
 - All waste relating to removal of battery energy storage systems
 - Waste relating to removal of cabling
 - Waste relating to removal of electrical equipment
 - Waste relating to removal of foundations
 - Waste relating to removal of water storage features
- Work No.4: onsite substations
 - Waste relating to removal of substation equipment
 - Waste relating to removal of security and site enclosure features
 - Waste relating to removal of cabling
 - Waste relating to removal of electrical equipment
 - Waste relating to removal of foundations
 - Waste relating to removal of maintenance buildings
- Work No.5: connection point at National Grid substation
 - No waste anticipated
- Work No.6: laying of high voltage cables
 - Waste relating to removal of cable equipment
- Work No.7: other onsite works
 - Waste relating to removal of security and site enclosure features
 - Waste relating to landscaping and earthmoving to reinstate land to agricultural use
- Work No.8: temporary decommissioning laydown areas
 - Waste relating to finish of security and site enclosure features
 - Waste relating to excavation of ground for road laying
 - Waste relating to materials for fit and finish of site and welfare buildings
 - Waste relating to removal of security and site enclosure features
 - Waste relating to removal of road construction
 - Waste relating to removal of site and welfare buildings
 - Waste relating to landscaping and earthmoving to reinstate land to agricultural use

- Work No.9: means of access to works from the public highway
 - Waste relating to removal of road construction
- Work No.10: creation of habitat management areas
 - Waste relating to removal of security and site enclosure features
 - Waste relating to landscaping and earthmoving to reinstate land to agricultural use
- Work No.11: creation of a new permissive footpath
 - No waste anticipated

20.9.13 The significance of the effects of each individual Works Package on waste is not likely to be significant across any stages of the Scheme's development, as a result of these Works Packages being a proportion of the waste streams generated from the Scheme as a whole. As such, the in-combination effect of all Works Packages are no different to the effects as assessed in **Tables 20.5, 20.6, and 20.7.**

Combination of Solar Array Sites

20.9.14 As previously described, this ES Chapter has assessed the Scheme as a whole with regard to its effects on waste receptors in the Local Impact Area. Although the four constituent Generating Stations are spread out over a large geographic area, and there is some level of flexibility in construction timescale, the effects of waste generation from the Sites are likely to be felt collectively over a large overlapping area (the Local Impact Area). Therein, the anticipated facilities handling recycling, re-use, treatment, and landfill requirement, are likely to be the same or similar across all four generating stations. As such, the magnitude of effect from each of the four generating stations has not been assessed separately as no individual generating station is likely to generate a significant effect.

20.10 Cumulative Effects

20.10.1 The Scheme is located in an area that is host to a notable number of Nationally Significant Infrastructure Projects, that are likely to be developed in a similar timeframe. Thus there is the potential for significant cumulative effects on the local waste management environment both during the development of these identified NSIPs, and their operational lifetimes.

20.10.2 A full list of identified schemes that could generate cumulative effects is presented in ES Appendix 2.3: Cumulative Assessment Sites **[EN010133/APP/C6.3.2.3]** and its supporting Figure 2.1: Cumulative Assessments Site Plan **[EN010133/APP/C6.4.2.1]**. This list contains the full list of identified cumulative assessment sites assessed in the ES.

20.10.3 For the purpose of assessing waste impacts, **Table 20.8** below outlines the identified cumulative projects that have been considered. Cumulative waste streams have sought to identify anticipated waste generated across all identified generating stations and their associated cable connections to the National Grid.

Table 20.8: Cumulative Projects Assessed for Waste Effects

Reference	Project Name & Location	Description
EN010132	West Burton Solar Project: Broxholme, Ingleby, and Brampton, Lincolnshire	NSIP 480MW three-part (sites) solar electricity generation generating station with associated infrastructure and energy storage
EN010131	Gate Burton Energy Park: Gate Burton, Lincolnshire	NSIP 500MW solar power electricity generation station with associated infrastructure and energy storage
EN010142	Tillbridge Solar: Glentworth, Lincolnshire	NSIP 500MW solar electricity generation generating station

20.10.4 As a result of the comparative scale of the identified cumulative sites and the subject Scheme, the following assumptions have been made about the scale of waste generated by the identified cumulative sites:

- Cottam Solar Project: approximately 600MW – 100%
- West Burton Solar Project: approximately 480MW – 80%
- Gate Burton Energy Park: approximately 500MW – 83%
- Tillbridge Solar: approximately 500MW – 83%

20.10.5 The resultant cumulative waste generation is therefore anticipated to be 347% of the individually assessed waste generation.

Cumulative Construction Phases

20.10.6 The construction activity of the cumulatively assessed projects is anticipated to reach its level of greatest effect in the year 2025, as determined in Chapter 18: Socio-Economics, Tourism and Recreation [EN010133/APP/C6.2.18] by the peak modelled construction activity.

20.10.7 The scale of the resultant cumulative waste generation from the identified projects is set out in **Table 20.9** below.

Table 20.9: Cumulative Waste Arising from Construction

Waste	Destination	Estimated Volume
Paint	Authorised recycling or landfill	Moderate
Solvents	Authorised recycling or landfill	Limited

Chemical cans and containers	Authorised recycling or landfill	Limited
Vegetation	Authorised recycling or landfill	Moderate
Pallet wood For PV module and mounting structure packing	Authorised recycling or landfill	85,600m ³
Corrugated cardboard, plastic wrap and Kraft cardboard For PV module and mounting structure packing	Authorised recycling or landfill	49,800m ³
Polyurethane foam padding For PV module cushioning during transport	Authorised recycling or landfill	45,200m ³
HDPE corner and edge spacers For PV module packing	Authorised recycling or landfill	824m ³
Pallet nails (2.5x55mm) For PV module packing	Authorised recycling	15.1m ³
TOTAL PACKING MATERIAL WEIGHT		13,300 tonnes
DC cable drums (9,060-9,150 no.) Mixed wood, plastic, metal	Authorised recycling or landfill	760 tonnes
LV cable drums (604-610 no.) Mixed wood, plastic, metal	Authorised recycling or landfill	980 tonnes
Grounding cabling drums (1,812-1,830 no.) Mixed wood, plastic, metal	Authorised recycling or landfill	360 tonnes
MV cable drums (151-153 no.) Mixed wood, plastic, metal	Authorised recycling or landfill	250 tonnes
TOTAL CABLE DRUM MATERIAL WEIGHT		2,300 tonnes
Excavation material from trenches unusable elsewhere on site	Authorised recycling or landfill	110,000m ³
Excavation material from drainage, roads and foundations unusable elsewhere on site	Authorised recycling or landfill	94,300m ³
TOTAL EXCAVATION WASTE		255,000 tonnes

(estimated soil density of 1,250kg/m ³)	
---	--

20.10.8 The total estimated cumulative construction, demolition and excavation (CD&E) waste to be generated from the Scheme construction is 271,000 tonnes over the combined construction period, estimated to be the four years from 2024-2028. For this cumulative assessment, waste streams are assumed to be consistent across the four years, and as such the waste generated per annum (67,700 tonnes) equates to an uplift in CD&E waste of 3.2% from the combined estimated CD&E waste for Lincolnshire and Nottinghamshire (2024 base year). This is approximately 1.7 times greater than the individual impact of the Cottam Solar Project. Assuming that waste is handled proportionally between Lincolnshire and Nottinghamshire, the cumulative impacts do not change the level of magnitude of the impacts, and thus do not change the significance of the effects from the assessment of Cottam Solar Project in isolation.

Operation and Maintenance

20.10.9 The operational lifetimes of the cumulatively assessed projects are anticipated to run concurrently from 2028-2066, after which the first of the projects are likely to enter decommissioning. As per the assumptions made for the construction period, the cumulative waste generated by the projects is anticipated to be 347% of the output from Cottam Solar Project when measured in isolation.

20.10.10 The scale of the resultant cumulative waste generation from the identified projects is set out in **Table 20.10** below.

Table 20.10: Cumulative Waste per Annum Arising from Operation and Maintenance

Waste	Destination	Estimated Volume
General waste	Authorised recycling or landfill	Low (not significant)
Food waste	Authorised recycling or landfill	Low (not significant)
Vegetation	Authorised recycling or landfill	Low (not significant)
Replacement PV modules Mixed glass, plastic, metal, electronics	Authorised recycling	18,300 units
TOTAL REPLACEMENT PV MODULE WEIGHT		611 tonnes

Pallet wood For PV module and mounting structure packing	Authorised recycling or landfill	340m ³
Corrugated cardboard, plastic wrap and Kraft cardboard For PV module and mounting structure packing	Authorised recycling or landfill	198m ³
Polyurethane foam padding For PV module cushioning during transport	Authorised recycling or landfill	271m ³
HDPE corner and edge spacers For PV module packing	Authorised recycling or landfill	4.94m ³
Pallet nails (2.5x55mm) For PV module packing	Authorised recycling	0.10m ³
TOTAL PACKING MATERIAL WEIGHT		53.2 tonnes

20.10.11 For the purpose of assessment, and the large similarity in waste materials, the CD&E waste baseline is deemed to be suitable. The total estimated CD&E waste to be generated from the Scheme per annum during operation is 702 tonnes. Per annum, this equates to an uplift in CD&E waste of 0.03% from the combined estimated CD&E 2024 baseline for Lincolnshire and Nottinghamshire. This constitutes a negligible magnitude increase in CD&E waste handling and as such does not increase the level of significance of the effects compared to those assessed for the Scheme in isolation.

20.10.12 Waste electrical or electronic equipment (WEEE) arising from the operation and maintenance of the cumulatively assessed projects is anticipated to be limited to worn or broken photovoltaic panels. These are not likely more than negligible quantities of hazardous materials, and as such, it is anticipated that there will be a long-term cumulative negligible magnitude uplift to hazardous waste in the Local Impact Area will have the following effects. As such, this does not increase the level of significance of the effects compared to those assessed for the Scheme in isolation.

Decommissioning

20.10.13 The level of waste assumed to be generated from decommissioning activities associated with the cumulative projects are anticipated to be 347% of the quantity estimated for Cottam Solar Project alone. As such, where figures are available, a quantitative estimate of the volume of waste materials is made in **Table 20.10** given the information that is known at this stage. Where a quantitative total of anticipated waste streams arising from the cumulative projects is not known, professional

judgement has been used to qualitatively estimate if likely waste streams from unmeasured sources are likely to be significant or not. As such, these waste streams are not included in the total calculation of anticipated waste volume or weight for each of the assessed Scheme stages.

20.10.14

Table 20.10: Cumulative Waste Arising from Decommissioning

Waste	Destination	Estimated Volume
Solar PV equipment		4,600,000 units
Silicon	Authorised recycling or landfill	7,300 tonnes
Glass	Authorised recycling	100,000 tonnes
Steel Frames	Authorised recycling	43,000 tonnes
Steel Mounting Structures	Authorised recycling	86,000 tonnes
TOTAL SOLAR PV MODULE AND MOUNTING STRUCTURE WEIGHT		240,000 tonnes
TOTAL ELECTRICAL (SUBSTATION/INVERTERS) WASTE WEIGHT		7,400 tonnes
TOTAL ELECTRICAL (Energy Storage) WASTE WEIGHT		24,000 tonnes
Metal	Authorised recycling or landfill	Moderate (not significant)
Concrete	Authorised recycling or landfill	Moderate (not significant)
Rubble	Authorised recycling or landfill	Moderate (not significant)
Building waste	Authorised recycling or landfill	Moderate (not significant)
Vegetation	Authorised recycling or landfill	Low (not significant)

20.10.15 Opportunities should be explored across all of the identified projects to minimise waste and re-use or recycle materials, before resorting to landfill options. There is an emerging industry for recycling and re-selling operational solar panels, which can help reduce waste produced by the projects.

20.10.16 The total estimated cumulative construction, demolition and excavation (CD&E) waste to be generated from the decommissioning of the identified projects is 270,000 tonnes. This is likely to be spread over a number of years due to differing

operational timescales associated with the cumulatively assessed projects. For this cumulative assessment, peak waste streams are assumed to be similar to those during the cumulative construction phase, and as such the waste generated per annum (67,500 tonnes) equates to an uplift in CD&E waste of 3.2% from the combined estimated CD&E waste for Lincolnshire and Nottinghamshire (2024 base year). Assuming that waste is handled proportionally between Lincolnshire and Nottinghamshire, the cumulative impacts do not change the level of magnitude of the impacts, and thus do not change the significance of the effects from the assessment of Cottam Solar Project in isolation. As such, a **moderate or large adverse effect** (which is **significant** in EIA terms) is identified on landfill waste handling in Nottinghamshire, due to the very high sensitivity of the receptor.

- 20.10.17 The cumulative total WEEE generated from the decommissioning of the cumulatively assessed projects is in the order of 271,000 tonnes, of which 24,000 tonnes is known to be considered as hazardous (batteries). This is likely to be spread over a number of years due to differing operational timescales associated with the cumulatively assessed projects. As such, it is not anticipated that the peak hazardous waste generation in any year during the cumulative decommissioning phase is anticipated to be substantively more than for the worst-case scenario for the Scheme in isolation. As such, the cumulative effect on hazardous waste handling in the Local Impact Area is not of any greater level of significance.

20.11 Residual Effects

- 20.11.1 When considered both in isolation and cumulatively with the identified projects in the Local Impact Area, the environmental effects from waste generated by the Scheme and cumulative projects are as follows:
- The overall effects on waste handling facilities in the Local Impact Area are not likely to be significant at any stage of the assessed timeframe;
 - No waste handling facilities in Lincolnshire are likely to see significant effects at any stage of the assessed timeframe;
 - No waste handling facilities in Nottinghamshire are likely to see significant effects during the construction or operational lifetime of the development;
 - Waste recycling and recovery handling facilities in Nottinghamshire are not likely to see significant effects during the construction or operational lifetime of the development; and
 - Waste handling facilities for landfill waste handling in Nottinghamshire are likely to see a **significant effect** during the decommissioning of the Scheme and cumulative decommissioning phase as a result of the lack of landfill capacity from the year 2030.
- 20.11.2 The anticipated impacts from the Scheme can be sufficiently mitigated through adherence to the measures set out in the Outline CEMP and Outline OEMP and the Outline Decommissioning Statement. These, along with their full counterparts to be

provided post-consent will ensure that the Scheme is developed with good practices towards use of materials and water, and management of waste in keeping with the principles of the Waste Hierarchy.

20.12 References

- Ref 20.1 The Waste (England and Wales) Regulations 2011, 2011 No.988
- Ref 20.2 Council Directive 2008/98/EC of 19 November 2008 on waste and repealing certain Directives. Available from: <http://eur-lex.europa.eu/>
- Ref 20.3 Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). London: The Stationery Office.
- Ref 20.4 Department of Business, Energy & Industrial Strategy (2021). Draft Overarching National Policy Statement for Energy (EN-1). London: The Stationery Office.
- Ref 20.5 Lincolnshire County Council (2016). Lincolnshire Minerals and Waste Local Plan: Core Strategy & Development Management Policies. Lincoln.
- Ref 20.6 Nottinghamshire County Council (2002). Waste Local Plan. Nottingham.
- Ref 20.7 Nottinghamshire County Council and Nottingham City Council (2013). Waste Core Strategy. Nottingham.
- Ref 20.8 IEMA (2020). IEMA guide to: Materials and Waste in Environmental Impact Assessment – Guidance for a proportionate approach
- Ref 20.9 Lincolnshire County Council (2021). Lincolnshire Waste Needs Assessment 2021 – Report 3: Lincolnshire Management Requirements for Construction, Demolition and Excavation Waste. Lincoln.
- Ref 20.10 Nottinghamshire County Council and Nottingham City Council (2021). Nottinghamshire and Nottingham Waste Needs Assessment. Nottingham.
- Ref 20.11 Lincolnshire County Council (2021). Lincolnshire Waste Needs Assessment 2021 – Supporting Report 5: Scoping of Management Requirements for 'Other' Waste Generated in Lincolnshire. Lincoln.
- Ref 20.12 ONS (2022). Census 2021: P01 – Usual resident population by sex, local authorities in England and Wales
- Ref 20.13 Lincolnshire County Council (2021). Lincolnshire Minerals and Waste Development Scheme.
- Ref 20.14 Lincolnshire County Council (2022). Lincolnshire Minerals and Waste Local Plan: Issues and options for updating the plan.
- Ref 20.15 Nottinghamshire County Council (2021). Nottinghamshire Minerals and Waste Local Development Scheme.
- Ref 20.16 Bassetlaw District Council (2011). Core Strategy & Development Management Policies DPD.
- Ref 20.17 Bassetlaw District Council (2022). Bassetlaw Local Plan 2020-2038. Publication Version.
- Ref 20.18 Central Lincolnshire Local Planning Authorities (2017). Central Lincolnshire Local Plan.

- Ref 20.19 Central Lincolnshire Planning Authorities (2022). Central Lincolnshire Local Plan Review: Proposed Submission.
- Ref 20.20 Department for Business Innovation & Skills (2014). WEEE Regulations 2013. Government Guidance Note.
- Ref 20.21 The Waste Electrical and Electronic Equipment Regulations 2013, 2013 No.3113
- Ref 20.22 DEFRA, Welsh Assembly Government, Scottish Executive (2006). Guidance on Best Available Treatment Recovery and Recycling Techniques (BATRRRT) and treatment of Waste Electrical and Electronic Equipment (WEEE). Available at weee.clarity.eu.com
- Ref 20.23 The Waste Batteries and Accumulators Regulations 2009, 2009 No.890
- Ref 20.24 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, 2017 No.572.